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ENVIRONMENTAL ISSUES CONSIDERATION
Presentation by Lucia King
Mid-Atlantic Wind Powering America
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- By way of self-introduction, I became interested in renewable energy development because a friend and I formed a Global Warming Study group in March 2002 in Page County where I now live. We studied global warming, conducted our own voluntary energy efficiency experiment where we tried to reduce our energy consumption and ultimately began looking at new energy developments and technology. In doing some web research, I happened to stumble on the Wind Anemometer Loan Program at James Madison University. Our group hosted a town meeting with the JMU/VWEC Wind Team giving a talk about wind energy, and I became a volunteer with VWEC after that.
- Before moving to the Shenandoah Valley in the mid-1990's I lived in Washington DC. I worked as a policy Analyst and Project Leader at the Congressional Office of Technology Assessment (OTA) from 1975-1985. OTA was one of the four research arms of Congress, and it was also the Agency that was abolished in the cost cutting era of the early 1990's. After working at OTA I went back to school and studied fine arts, then continued my policy work as an Independent Consultant. I was hired by EPA to do an analysis mandated by the Clean Air Act of 1990 on how the federal government handles chemical emergencies. After completing the study, my husband and I bought our home near Luray, and I moved to the country for good, though I continue to do intermittent work in DC right now primarily teaching technical writing at the Nuclear Regulatory Commission (where I will be going after my presentation here).
- Living in the country as I do, I have a great appreciation for nature and an increasing understanding of rural life. I have always been drawn to environmental concerns, though I have not been an environmental activist. I became aware of the avian mortality concerns of the environmental community with respect to wind energy largely through my arts and crafts endeavors. I am on a wood-firing team for a professional potter in Nelson County whose wife works for the Nature Conservancy. It was in talking with her that I first became aware of the significant environmental concerns and described those concerns to the VWEC principles.
- My formal education was in English Literature and Higher Education Administration. I was hired at OTA because I could write. Our director liked to pair English and journalism majors with scientists and engineers on project teams so that our studies could be understood by Congress. So please know that I am neither an engineer nor an environmental scientist, but that I respect scientific and technical disciplines.
- My talk today is about the products and process that the Virginia Wind Energy Collaborative (VWEC). Environmental Working Group and its Subcommittee are currently undertaking.
- At the outset, I would like to note two very important caveats about my presentation:
 - 1) The work we are doing is, I believe, pioneering. We are inventing the process and the products as we go along, and it is still "a work in progress." We don't yet know what the exact outcomes of our work will be.
 - 2) My second caveat is that this is a presentation about an environmental education tool with respect to wind energy; it is not a presentation about the environmental pro's and con's of wind energy.

- My apologies if the title of the talk is misleading. A week and a half ago when MaryAnne and I discussed the title, I was trying to manage a major tree trimming operation at my home at the same time we discussed the title, so the first title that came to mind is the one we went with.
- I'm going to focus this presentation on three things today:
 - 1) The product we are creating to educate all parties on Virginia's ecological and recreational landscape with respect to wind energy;
 - 2) The process we have used thusfar to create the product; and,
 - 3) What we hope to achieve: the value and limits of the tool we are creating.
- If there is time, I will also try to answer any questions you might have following the presentation.

What is the Landscape Classification System that we are creating?

- Within our environmental subcommittee working group we have struggled with a title for the product that we are in the process of developing and completing. Currently we are using the phrase: Landscape Classification System.
- What this system is comprised of is a map with legend definitions contained in a classification system or ranking system for utility scale site suitability--strictly from an environmental perspective.
- We took the new Virginia Wind Resources Map, and with the knowledge and assistance of the environmental community, state and federal agencies, we have overlaid layers of geographic information system data so that we can see where areas of sensitive importance to the environment and in some instances, to recreational and tourist interests, intersect with potential utility scale wind sites, with Class 4 and above winds.
- To date the types of overlays, e.g. layers of GIS information, that we have gathered represent:
 - GIS information readily available to the public but dispersed over a number of agencies and organizations;
 - licensed GIS information on sensitive natural resources that must be obtained through license agreements with the Dept. of Conservation and Recreation and the Va. Chapter of the Nature Conservancy.
- Some examples of the GIS layers that we have included are:
 - National Forest boundaries
 - Within the National Forests we have layers on:
 - Wilderness areas
 - Wilderness Study Areas
 - Roadless areas
 - Special Interest Areas
 - Research Natural areas
 - We also have
 - Shenandoah National Park
 - Shenandoah Wilderness Area
 - Skyline Drive Historic District
 - State Parks and State Forests
 - National Wildlife Refuges
 - The Appalachian National Scenic Trail
 - Coastal and Bay waters with important submerged aquatic vegetation

As you can ascertain many of these identified areas are managed by state and federal Agencies that have specific legal and administrative mandates and responsibilities with respect to the designated areas. In our work we have attempted to reference and define those missions whenever possible.

- Examples of GIS layers which we have that must be obtained through agreements with the Virginia Dept. of Conservation and Recreation and Virginia Chapter of the The Nature Conservancy include:

The DCR Preserves
The TNC Preserves
DCR Natural Heritage Sites
TNC Ecoregional Portfolio Sites

- In Virginia, Natural Heritage Resources are defined by law, as “the habitat of rare, threatened, and endangered plant and animal species; exemplary natural communities, habitats, and ecosystems; and other features of the Commonwealth.”

Some of this GIS information is protected, that is, it is available only through licensing arrangements because the natural resources within the specified geographic areas are sensitive and protected. So, some of this information will be available on a “view only” basis, not through any reproduced products, such as CD’s or on websites.

- Within the total Landscape Classification System, to date we have included approximately 20 layers of GIS information overlaid on Virginia’s Class 4 wind sites. We are completing definitions for the layers so that anyone who uses the classification system can grasp what the data layers mean with appropriate references, and we are developing a classification system that includes categories, that from an ecological and recreational perspective, may be problematical or need to be pursued with caution and study prior to any siting decisions for wind energy development.

Within the classification system and the definitions of the GIS information we are indicating the types of environmental impacts that can be anticipated.

- We see this as a tool all stakeholders can and hopefully will use early on in the macro-siting decision-making process. By all stakeholders I mean: landowners, developers, environmental organizations, local, state and federal government agencies.
- Theoretically, we believe that wind developers would need to create such a tool on their own for specific sites they might be interested in. We are hoping this will give them a heads up on areas of environmental, recreational and historic sensitivity, as well as contact information for agencies and organizations they might need to work with in further understanding or assessing potential ecological impacts.

What Process Have we Used to Develop this Tool and To Look at Environmental Issues?

- I’m going to spend some time talking about our process—how we came together to create the products I just described and how we have gone about our work. I believe this is important. I would also like to reiterate here that we are a “work in progress.”
- One of the tasks of the Virginia Wind Energy Collaborative was to hold a series of workshops regarding wind energy in Virginia. The first of these workshops was held last March at James Madison University. It’s theme was “Developing Utility Scale Projects.” At that meeting the new Virginia Wind Resources map was unveiled and CD’s of the map were distributed.
- Several representatives from environmental organizations as well as state agencies with environmental responsibilities attended that first workshop. One of the workshop speakers was Curtis Smalling from

the North Carolina Audubon Society. After his presentation considerable discussion of environmental issues ensued.

- One of the requests from environmental representatives in attendance was for VWEC to serve as a coordination point for helping the environmental community become more informed about wind energy and for helping them communicate with developers.
- Also at the meeting, through informal conversations with representatives from the Nature Conservancy and the Dept. of Conservation and Recreation, we learned that GIS information existed on sensitive natural heritage resources.
- Some of us present immediately saw the potential usefulness of applying existing Geographic Information System data to the Virginia Wind Resources map to understand and see where potential sensitive natural resources intersected with potential wind development sites.
- Following that meeting, three or four environmental organizations sent a letter to the governor expressing their interest in and concerns about utility scale wind development in Virginia.
- The Governor, through the Dept of Mines, Minerals and Energy, identified VWEC, as the conduit for working with the environmental community as wind energy development is pursued in the state.
- Through internal discussion VWEC members felt it was/is important to involve the environmental community in the process and initiated a meeting inviting representatives from environmental organizations. As a volunteer to VWEC with environmental interests and limited connections to the environmental community, I agreed to undertake responsibility for the endeavor.
- To date, we have held two large group meetings with the environmental community, the first last May and the second in July, and we have subsequently convened a small environmental subcommittee to undertake project activities.
- In the first Environmental Working Group meeting, held in May at James Madison University, we had all VWEC members present, and 15 persons from the environmental community present
- Most of the environmental attendees were from mainstream environmental organizations, and most were familiar with the Appalachian Mountain section of the state. We also invited the Forest Service because of the presence of Jefferson and George Washington National Forests. We did not have any representatives from environmental organizations whose focus is primarily coastal protection, an omission which we tried to rectify at our second meeting.
- We accomplished a number of things at our first meeting.
 - 1) VWEC members and representatives from the environmental community got to know each other on a person to person basis and organizational basis.
 - 2) The environmental community began to get a better understanding of the technology and technical considerations for wind energy.
 - 3) VWEC began to get a better picture of the environmental concerns with respect to wind energy in Virginia.
 - 4) All agreed that small wind development was not an issue of concern to the environmental community.
 - 5) The idea of taking the Virginia Wind Resources Map and overlaying GIS data layers containing information useful for siting and information on sensitive natural heritage resources was proposed and embraced by the group.
 - 6) The need for knowing how other states had addressed the environmental issues with respect to utility scale wind development was identified; And,
 - 7) Other ideas and action items were determined, such identifying with greater clarity avian research and avian research issues with respect to wind development.

- VWEC took the initial lead in developing the map. Mark Lotts, a recent JMU graduate with GIS computer skills and member of the Wind Team, worked on an initial draft. Don Giecek, also a JMU graduate and a member of the Virginia Wilderness Committee, and a person who earns his living by specializing in GIS mapping, came forward to help Mark. This initial work was done in June and early July.
- During the first meeting and during the course of developing the first draft, both VWEC and the environmental community recognized that creating such a map would give everyone the capability of better understanding environmental landscape issues and developing what we were then calling an environmental sensitivity ranking system—a way to identify priorities among geographic areas according to environmental and recreational sensitivity.
- At the July meeting, our second, large Environmental Working Group meeting, Mark presented the first cut of the map. At that meeting we discussed in more detail the accompanying educational tools and the potential uses for the map. We also learned more about how other states were addressing environmental issues and more about avian research issues of concern to the environmental community. And we had more representation from state environmental agencies, including some responsible for coastal environmental issues.
- In the initial draft of the map presented at the July meeting we had over 30 GIS layers on the map. We were and still are all learning about this new tool. The first draft was somewhat difficult to interpret as a result of the many layers.
- Also it became apparent that a lack of knowledge about what each layer encompassed, by those not familiar with environmental matters, inhibited our understanding and interpretation of the map and its layers.
- We all recognized both the problem of having too much information on the map as well as our need to selectively add some layers of other important environmental information.
- Also, we were not certain we had the information presented in the easiest format to follow, and we knew that we needed to understand what each layer of data represented.
- I have brought extra copies of the Meeting Summary notes from both the May and July meetings, or you can find them on the JMU/VWEC website, if you are interested.
- At the July meeting we also realized that we could not continue to work in such a large group format. As facilitator of the working group, it became apparent to me from the discussions during the July meeting, that the environmental community needed to make and have greater input to the process. They knew the meaning of the GIS layers, VWEC did not. They also had a better perspective on what information was needed for the map and how it could be effectively presented.
- Two subcommittees were formed at the July meeting. One was tasked with revising the map, adding and deleting layers as appropriate and getting the actual map with multiple layers in a visual format that is easier to follow. The group also was tasked with drafting a legend, that is definitions of each of the layers, and with developing recommended sensitivity ranking system.
- The other subcommittee was tasked with identifying avian research issues and some strategy for addressing those issues. Because the same environmental activists volunteered for each group, the two subcommittees have been combined and our work to date has focused primarily on the first set of tasks related to the landscape classification system.
- I have served as the facilitator at the large VWEC Environmental Working Meetings in May and June and at the smaller Subcommittee meetings. Subcommittee members include: Don Giecek from the

Virginia Wilderness Committee, Judy Dunscomb from the Virginia Chapter of The Nature Conservancy; Rick Webb from the Virginia Society of Ornithology (mountains), Bob Anderson from the Virginia Society of Ornithology (coast), Christina Wulf from Virginia Forest Watch, and Dan Boone, a Conservation Biologist.

- The Environmental Subcommittee has met twice now in day-long meetings working on the classification system including map, layer definitions and ranking system. Don Giecek has done the GIS work on the map. Some members of the group have also attended various public meetings of the National Wind Coordinating Committee relevant to environmental issues and discussions. The group is having one more meeting, a peer review endeavor, to critique the GIS layers, definitions, and concept for ranking. Then the Subcommittee will meet again with WVEC to review and discuss the work thus far. The group would also like to meet with some developers to get feedback on usability of the product, before creating multiple copies of the product such as website postings, large hard copies of the System, CD's etc. what I am referring to as "the road show."

What are the Benefits and Limitations of the Products We are Creating?

- At this point in my presentation, I would like to acknowledge that I am conjecturing when talking about the benefits and limitations of what we are doing. The System has not yet been released so we don't necessarily know how it will be received or used.
- We have created an educational tool that I believe will give all stakeholders a more informed basis for discussion.
- We conceived it as a macro-siting tool to help developers early on in their decision making process, because it has visual as well as written components, covering Virginia's natural and recreational resources. Two or three hours with this map with a person knowledgeable about the contents of the classification system, e.g. the map and its contents, will help developers understand the landscape of areas protected, studied and catalogued in Virginia. It will also indicate where environmental monitoring has not been undertaken or was not available.
- It was our hope when we conceived the idea, that the Classification System would provide a way, a venue, for developers, environmentalists and environmental scientists, knowledgeable about Virginia's natural heritage resources, to discuss the science and assessment needs of given areas, preferably before developers have spent a lot of time and money in wind prospecting.
- The tool will also give users an indication of the state/federal agencies and persons they need to consult regarding important natural resources.
- Conversely, the tool will also help state and federal agencies understand the range of natural heritage resources within the context of wind energy resources in the state. Our hope again, is that the tool will be useful to multiple state and federal agencies involved in any aspect of wind development in the future.
- We think the system will give everyone a common starting point for understanding both the wind resources within the state and the natural heritage resources—we hope it will inform the dialogue, give all parties a factual understanding and basis for discussion.
- As far as limitations of the tool we are creating, I do not want to portray the tool as anything more than it is. I believe that it will aid an informed dialogue, it will not resolve some of the significant issues. If you read the meeting summaries of our May and July meetings you will see the issues that have been raised by the environmental community within Virginia—
 - ✓ the potential cumulative environmental impacts of multiple utility scale wind farms in the Appalachians and along the Atlantic seaboard,

- ✓ the concern about avian and bat mortality particularly because both the Appalachians and Atlantic seaboard are the major east coast migratory bird routes, and
- ✓ the lack of sufficient avian research in this part of the country and effective assessment and research protocols.

These issues need to be addressed.

- I hope that the work we are doing in Virginia helps to continue to inform the discussion constructively and through dialogue among all parties.
- I believe renewable energy resources offer a very important part of our present and future energy needs and, I believe, we have the opportunity to develop such resources in an ecologically responsible and sustainable way. It is my hope that we pursue these opportunities with wisdom, courage and respect for one another.